

Edward Howard & Co

Public Relations Counsel
an affiliate of Hill and Knowlton, Inc.
1021 Euclid Avenue
Cleveland, Ohio 44115
216-781-2400
FAX: 781-8810

to: Pipe Resource Organization date: August 24, 1989
from: Nora Jacobs/Dan Stanowick *NS* copies to: John Bird
subject: PRO Communications Program Launch

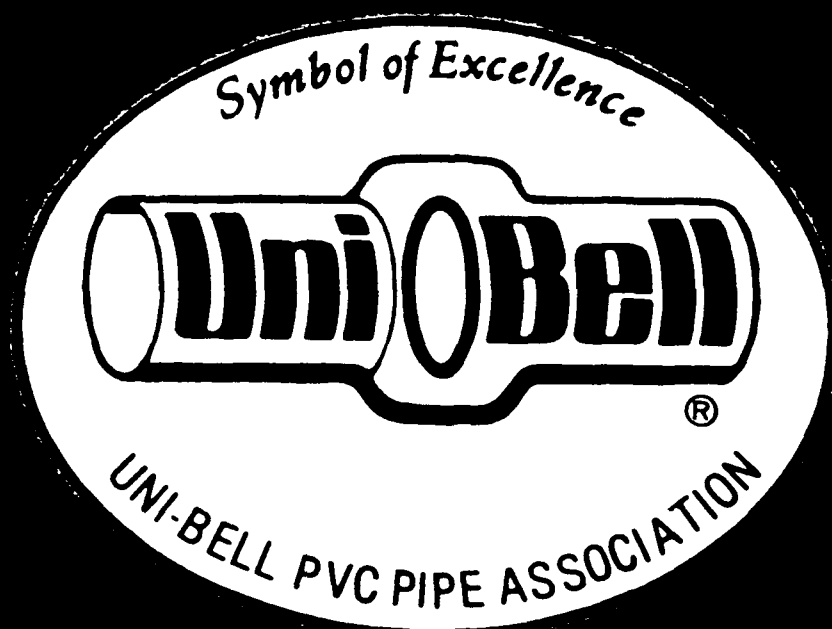
Enclosed, for your review, is our recommendation for a first round of communications activities designed to support the Pipe Resource Organization in its plan to expand the use of vinyl large-diameter water distribution pipe. We look forward to discussing it with you further on August 30 when PRO meets in Cleveland. In the meantime, if you have any questions, please feel free to call us.

RECEIVED

AUG 25 1989

Sherry M. Carr.

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HISTORY

In 1971 a group of responsible PVC pipe producers had the foresight to recognize that the exceptional qualities of performance and value would eventually make gasketed joint PVC pipe the product of choice for buried water, sewer and irrigation piping. To properly service the future design and technical information needs associated with such a large scale and growing industry, these leaders combined their resources to create a non-profit technical, educational and research oriented organization known today as the Uni-Bell PVC Pipe Association.

SERVICE

Since it was organized, Uni-Bell has served the engineering, regulatory, public health and standardization communities with integrity and considerable measures of both time and resources. Whenever questions or problems have arisen relative to PVC pipe performance, Uni-Bell members, through their Association, have responded. Uni-Bell sponsored research in the areas of buried pipe deflection; ultraviolet aging, direct tapping and cyclic surge performance has provided pipe designers and installers with much needed practical information.

Today Uni-Bell is working for all PVC pipe users and potential pipe users, helping to assure proper product application and performance through research and education. Uni-Bell's highly qualified professional staff work to provide users with the information they need concerning gasketed joint PVC pipe. In addition, Uni-Bell continues to develop useful technical publications and recommended standards recognized around the world. The Uni-Bell *Handbook of PVC Pipe: Design and Construction* is without question the most comprehensive text on PVC pipe to be found anywhere.

RESPONSIBLE PRODUCERS

The many services and publications provided by Uni-Bell are made possible by those gasketed joint PVC pipe manufacturers who believe that top quality pipe, service and technology all go hand in hand. Uni-Bell members are able to service their customers with trained professional personnel and Uni-Bell technical expertise. Consequently, it pays to purchase Uni-Bell member manufactured PVC pipe products to assure quality product, service and technology.

QUALITY CONSCIOUS . . .

UNI-BELL MEMBER COMPANIES*

Canron
Montreal, Quebec

Carlton
Cleveland, Ohio

Contech Construction Products, Inc.
Middletown, Ohio

Diamond Plastics Corporation
Grand Island, Nebraska

Extrusion Technologies, Inc.
Denver, Colorado

J-M Manufacturing Company, Inc.
Stockton, California

Pacific Western Extruded Plastics Co.
Eugene, Oregon

Scepter Manufacturing Co., Ltd.
Toronto, Ontario

UNI-BELL ASSOCIATE MEMBERS

B.F. Goodrich Canada, Inc.
Waterloo, Ontario

Corma, Inc.
Concord, Ontario

Forsheda Pipe Seal Company
Anderson, South Carolina

Hamilton Kent
Houston, Texas

Morton Thiokol - Ventron Division
Danvers, Massachusetts

Multi-Fittings Corp.
London, Ontario

S & B Technical Products, Inc.
Fort Worth, Texas

Spears Manufacturing Company
Livingston, Texas

UNI-BELL INTERNATIONAL AFFILIATES

Alphacan
Saint Cloud, France

Century Eslon Limited
Port of Spain, Trinidad

Hardie Iplex Plastics
North Sydney, Australia

Humes Plastics
Clayton, Australia

Pavco
Bogota, Colombia

Solidex
Delmas, Port Au Prince Haiti

Tubos Flexibles, S.A. de C.V.
Naucalpan de Juarez, Mexico

Uponor
Nastola, Finland

Vassallo Inc.
Coto Laurel, Puerto Rico

Vinidex Tubemakers Pty. Limited
Gordon, Australia

Wavin
Dedemsvaart, The Netherlands

UNI-BELL AFFILIATED ASSOCIATION

The Vinyl Institute
Wayne, New Jersey

*Membership as of May 1, 1989
Headquarters Locations

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UNI-BELL

TECHNICAL AND EDUCATIONAL LITERATURE*

PUBLICATIONS

Handbook of PVC Pipe: Design and Construction, Second Edition (377 pg)

Handbook Supplement: Large Diameter Pressure Pipe Design and Selection (16 pg)

- UNI-PUB-1 Technology Serving the Water and Sewer Industries (4 pg)
- UNI-PUB-3 PVC Pipe - Technology Serving the Water Industry (15 pg)
- UNI-PUB-6 Installation Guide for PVC Sewer Pipe (28 pg)
- UNI-PUB-7 External Corrosion of Underground Water Distribution Piping Systems (14 pg)
- UNI-PUB-8 Tapping Guide for PVC Pressure Pipe (20 pg)



\$40.00

RECOMMENDED SPECIFICATIONS AND PRACTICES

- UNI-B-1 Recommended Standard Specification for Thermoplastic Pipe Joints, Pressure and Non-Pressure Applications (4 pg)
- UNI-B-3 Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (7 pg)
- UNI-B-5 Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Sewer Pipe (16 pg)
- UNI-B-6 Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe (14 pg)
- UNI-B-8 Recommended Practice for the Direct Tapping of Polyvinyl Chloride (PVC) Pressure Water Pipe (4 pg)
- UNI-B-9 Recommended Performance Specification for Polyvinyl Chloride (PVC) Profile Wall Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter (Nominal Pipe Sizes 4-48 inches) (8 pg)
- UNI-B-10 Recommended Standard Specification for Type PS46 Polyvinyl Chloride (PVC) Plastic Gravity Sewer Pipe and Fittings (Based on Performance Requirements) (Nominal Diameters 4-15 inches) (4 pg)
- UNI-B-11 Recommended Standard Specification for Polyvinyl Chloride (PVC) Water Transmission Pipe (Nominal Diameters 14-36 inches) (20 pg)
- UNI-B-12 Recommended Standard Specification for Polyvinyl Chloride (PVC) Pressure Fittings (12 pg)
- UNI-B-13 Recommended Standard Performance Specifications for Joint Restraint Devices for Use With Polyvinyl Chloride (PVC) Pipe (4 pg)
- UNI-B-14 Recommended Standard Specification for Fiberglass Overwrapped Polyvinyl Chloride (PVC) Pressure Fittings (12 pg)

TECHNICAL REPORTS

- UNI-TR-1 Deflection: A Mark of Excellence (34 pg)
- UNI-TR-2 Grounding, Locating and Thawing Procedures for Water Mains and Services (10 pg)
- UNI-TR-3 Maintenance of PVC Sewer Pipe (14 pg)
- UNI-TR-4 Vinyl Chloride; The Control of Residual Vinyl Chloride Monomer in PVC Water Pipe (28 pg)
- UNI-TR-5 The Effects of Ultraviolet Aging on PVC Pipe (12 pg)

*Handbook price \$40.00 (U.S.). All other literature available at no charge.

Copies of the above may be ordered by calling or writing to Uni-Bell.

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Public Relations Counsel
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THE VINYL INSTITUTE

PIPE RESOURCE ORGANIZATION

COMMUNICATIONS PROGRAM LAUNCH

August 30, 1989

CTL027663

THE VINYL INSTITUTE
PIPE RESOURCE ORGANIZATION
COMMUNICATIONS PROGRAM LAUNCH
AUGUST 30, 1989

INTRODUCTION

The following proposal outlines the first steps in an ongoing communications program for the Vinyl Institute's Pipe Research Organization. It is based on the results of a market research study completed in June 1989, and the Organization's subsequent review of the study at the end of June.

The proposal includes a discussion of vinyl's position in the pipe market, targets of opportunity and obstacles to success. It outlines objectives for the program, presents a communications strategy for the Organization, and identifies priority target audiences. The activities recommended to launch the program are described in detail, and preliminary recommendations for longer-range activities are presented for the group's discussion and planning. A budget for the balance of FY 1989-90 is included, as is a timetable for the first phase of the program.

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SITUATION ANALYSIS

A study recently completed by the Freedonia Group predicts that by 1992, PVC pipe is likely to become the leading pipe material used in the United States, representing nearly 40 percent of the total pipe market. Vinyl pipe is already well-established in applications like irrigation systems, rural water delivery and drain-waste-vent. Future growth is likely to be further enhanced by the Environmental Protection Agency's July decision to ban most remaining uses for asbestos-cement pipe, heretofore a major competitor for PVC in water distribution and sewer systems.

The Sommers & Associates study conducted for the Pipe Research Organization, however, identifies some important pockets of resistance to the broader use of vinyl pipe in the market targeted by PRO for its growth potential, the large diameter market. Here, the two key decision-making audiences -- public works officials and consulting engineers -- reported healthy short-term increased use of PVC LD pipe: 50 and 42 percent, respectively. Long-term, however, as many public works officials planned to maintain current use levels as increase them, and four times as many consulting engineers stated that they would use the same amount of vinyl pipe as those who stated that they plan to increase their use. This is in light of the fact that nearly 50 percent of both groups report current use of vinyl at only 0 to 10 or 15 percent of total pipe use. Overall, the study reveals strong acceptance for vinyl pipe in corrosive soil, but resistance to its use under other conditions, particularly in pressure pipe applications.

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Some of this resistance to increased use is identified in the verbatims included in the report: vinyl's durability and ability to last as long as competitive materials is frequently questioned, and concerns about permeation/water quality, its overall strength vs. cast iron and poor taping reputation appear often throughout the report. These perceived problems may overshadow the advantages that these groups associate with PVC: lightweight, ease of installation and corrosion resistance.

Perhaps the most encouraging part of the research is the indication by both groups that they are receptive to more information about vinyl pipe and believe that a trade association would be an appropriate source for it. This gives the Pipe Research Organization a clear opportunity to support the expanded use of vinyl pipe in the large diameter market and develop an identity as an authoritative source for information.

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PROGRAM OBJECTIVES

The activities recommended to launch this communications program support the following objectives, which reflect the findings of the market research study, and the Organization's decision to focus on the large diameter water distribution market:

- Develop recognition for the Pipe Resource Organization as a centralized source for information about the use of vinyl pipe.
- Correct misperceptions about the performance of vinyl pipe, with emphasis on those revealed by the market research.
- Promote the perceived strengths of vinyl pipe, with emphasis on those identified in the market research. In addition, develop recognition for the superior ability of vinyl pipe to maintain water integrity -- a major concern of those surveyed.

Success in meeting these objectives can be measured informally through the feedback that PRO members receive from their contact with the pipe industry, and formally by measuring response to various program elements and by conducting structured research. Recommended follow-up research is discussed further later in this proposal.

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PROGRAM STRATEGY

PRO has already established a broad strategy for this program by focusing on that segment of the market that it believes offers the best return on investment: the large diameter water distribution segment. The following guidelines will help further maximize the effectiveness of this program:

- 1) Address first those concerns about which the Organization has the most information and data. These concerns were identified and prioritized by PRO at its June meeting. As a result, immediate communications efforts will focus on communicating correct information about vinyl pipe's:
 - durability/longevity
 - strength (during installation and after)
 - cost effectiveness (lifetime cost -- encompassing product cost, installation cost, maintenance and replacement cost) and
 - permeation/water quality and integrity.
- 2) Demonstrate market acceptance by promoting actual use. Because they are the strongest possible demonstration of a product's effectiveness and value, we recommend that case histories and testimonials be used extensively in this program.
- 3) Use existing resources to provide technical support to the marketplace .

We have collected a substantial amount of material from the industry's pipe manufacturers, as well as from Uni-Bell. Some of this material probably can be distributed in its current form; other items probably can be modified for PRO's use. This will help minimize the investment the Organization will have to make in generating original, technically oriented material.

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Elements of the program also should be developed to support the Organization's stated desire to use Uni-Bell as a technical resource. Here, we recommend coordinating such elements as advertising response and inquiry handling to take advantage of Uni-Bell's field experience and storehouse of "hands on" information.

- 4) Expand industry participation to make vinyl an equal player among the pipe industry leadership. As the Organization already recognizes, building a presence for PRO and its members in AWWA and the standards organizations will be critical to enhancing the image of vinyl pipe, and to facilitating the standards changes that will create market opportunities for PVC. Success in this area will largely depend on the willingness of individual PRO members to work on committees, present papers, attend meetings, etc. The communications program can leverage this commitment by publicizing involvement in these activities.
- 5) Take advantage of the asbestos-cement opportunity. A-C's departure from this market presents a clear opportunity to convert A-C users to vinyl. The advantages that vinyl has over A-C (or the comparable advantages it has over cast iron) should be prominently featured in the materials prepared for this program.

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TARGET AUDIENCES

The market research clearly identified that the selection of one piping material over another in the large diameter water distribution market is a decision limited largely to public works officials and consulting engineers. This program, therefore, will focus on these two groups, as well as the standards organizations, whose actions permit the use of vinyl piping or prohibit it.

In particular, those activities that require the largest dollar investment, such as advertising, will be targeted to these audiences. Other activities, such as publicity, which can be expanded beyond the target audiences without significant additional cost, will be used to reach other segments of the industry, such as contractors and pipe manufacturers. While these groups seem to have less influence over the selection and use of vinyl pipe, it is important to keep them informed about developments in the industry and favorably inclined toward PVC.

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ADVERTISING

In our original proposal to the Pipe Task Force last November, we recommended that print advertising be used as one of the group's primary communications' vehicles. After reviewing the just-completed research, we remain convinced that this is the most cost-effective way to reach PRO's target audiences. Use of print advertising also will allow us to control the timing and content of the Organization's message -- an important consideration when launching a new communications effort.

Approach

The advertising campaign we propose is designed to support all three of PRO's program objectives: to correct misperceptions about the performance of PVC pipe; to educate current and prospective users and specifiers about the benefits they can derive from its use; and to develop recognition for the Pipe R source Organization. In addition to the strong message the ads will convey, their frequency, size and content will be an effective counter to the campaign currently being waged by the industry's competitors.

As previously outlined, we believe the most effective way to demonstrate the benefits of vinyl pipe is to use real-life case histories of individuals/municipalities that have had successful experiences with PVC pipe. These independent, credible sources have true stories to tell about vinyl's overall performance, cost savings and problem-solving capabilities. Those who agree to participate in this program will lend an endorsement to vinyl pipe that otherwise will be impossible to achieve.

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Based on the previously completed market research as well as referrals from Uni-Bell, we have already identified a number of such individuals/ municipalities that are willing to consider going on the record in PVC's behalf. Following is a list of those who have expressed preliminary interest to date. We expect to have additional responses to report at the August 30 meeting:

Donald Wright
Consulting Engineer
Catterall & Wright
Saskatoon, Saskatchewan

Says PVC has virtually replaced iron pipe in applications with which h and his associates are familiar. Says its flexibility nicely accommodates the soil heaving encountered with a deep frost line.

Robert Elefritz
Senior Engineer
Briley, Wild Associates
Ormond Beach, Florida

Says PVC pipe is just right for the soil conditions in Florida and that he and his associates specify vinyl often.

Kenneth Wilkes
Independent Consulting Engineer
Escondido, California

Says he has used all kinds of pipe and highly recommends PVC for irrigation purposes or for any outside application.

Roger Baker
Consulting Engineer
Jones & Henry Engineers
Toledo, Ohio

Spoke in generalities but acknowledged using a lot of vinyl in a variety of applications.

Mr. Roger Graff
Deputy Water Utilities Director
San Diego Water Utilities

CTL027672

Uses PVC for landscape irrigation and other new applications.
Says primary benefit is performance in corrosive soils.

Note that we are still looking for a case history that zeros in on potable water distribution. We also would like to find an A-C replacement story. Any input that PRO member can provide to find these case histories will be useful and is encouraged.

The design approach that we have developed for the ads will be presented August 30.

Placement

We have reviewed and previously discussed with you a number of publications that reach PRO's target audiences of individuals who install, specify, buy or influence the purchase of large diameter water distribution pipe, especially municipal water managers and civil engineers. After comparing their various circulations, and in keeping with our recommendation to focus higher cost activities on your primary target audiences, we recommend advertising exclusively in AWWA Journal for the balance of 1989 and thru 1990.

AWWA Journal is edited for those who are responsible for, or have a professional interest in, design, operation and management of public water supply systems. Total circulation is 31,767, of which 21,140 are individuals associated with a municipal or investor-owned public water system; federal, state or local officials; and members of a consulting firm or contractors. AWWA Journal was cited in the market research as the top magazine by both municipal water managers and engineers. Moreover, it is the publication being used by your competition.

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Format/Frequency

Format and frequency are the two advertising variables that can most impact an ad campaign's success. We recommend a series of two or three full-page case history/testimonial ads. Preliminarily, we have budgeted for 4-color ads; the design we finally select perhaps can be effectively executed in two colors or black & white.

Considering production requirements and the fact that our recommended advertising medium is a monthly trade publication, the earliest we would be ready to advertise likely would be November. For maximum impact and memorability, and to maintain a constant presence in the marketplace, we recommend starting then and running additional monthly insertions in AWWA Journal for the balance of your fiscal year. We would want to continue this program into fiscal 1990, but likely on an every-other-month basis and taking advantage of appropriate "special emphasis" issues.

Testing

In order to gauge the effectiveness of the advertising initiatives we've outlined here, we recommend some pre- and post-campaign research. Specifically, we recommend developing a modest questionnaire which would be mailed to approximately 1,000 AWWA readers selected at random now and again in June 1990, after we've fired our initial advertising salvos.

This research would attempt to measure the general awareness of vinyl pipe's performance properties and attributes prior to the launch of the campaign, and after repeated exposures to the group's advertising messages. Written reports of results would be prepared both now and after the follow-up research, and would be used to modify or expand the campaign in FY 1990-91.

Program Extensions

While no organization can afford an advertising campaign that achieves total market saturation, there are ways to achieve greater reach on a limited budget.

One way is to place existing ads in special issues of those magazines that are not part of your core program. In the case of PRO, these could include special issues of Public Works, Civil Engineering or other publications that might, for instance, offer an editorial emphasis on a subject related to pipe materials or highlight the proceedings of an industry conference or show.

Another way is directory advertising. Three of the magazines in your field publish annuals or reference directories. These are an excellent use of advertising dollars because they typically have a shelf life of 12 months and are referred to frequently.

In both cases, since advertising materials would already exist, the only additional costs to take advantage of these opportunities would be for space. In FY 89-90, there is an opportunity to advertise in the Municipal Index (circulation 38,835; issued by the publishers of American City & County), and Public Works Manual (circulation 49,060). It should be noted that both publications provide reader service numbers, an excellent way for PRO to disseminate additional information, add names to its database and measure the effectiveness of the ads in these publications. In FY 90-91, there also will be an opportunity to advertise in the AWWA Buyer's Guide.

CTL027675

INQUIRY RESPONSE

Earlier this year, we worked with members of PRO to develop a piece of literature that could be used to respond to inquiries and present basic information on the use of vinyl pipe in water distribution applications. After some discussion of the extent of information that PRO and the Vinyl Institute would want to provide in these situations, we recommended the development of an expanded pocket folder. We still recommend this approach because of the long shelf-life and versatility it offers.

Preliminary designs for the folder were presented in May, and we will ask the Organization to review them again on August 30. As currently conceived, the folder would consist of a high-impact, dramatic cover carrying a strong message related to the positive attributes of vinyl pipe. Inside, the left-hand half of the folder would provide brief copy detailing the key benefits of vinyl pipe, while dispelling the misperceptions about it in positive terms. Along with the copy would be several photos showing vinyl pipe in use or being installed. The pocket on the right would be used to present more detailed information developed by the Institute or other organizations, and tailored to the interests of the inquirer or audience.

This is the basic piece that would be sent to individuals responding to the advertising program, and it also could be used by PRO members making presentations or speeches at industry events, in our contacts with the media on behalf of PRO, and at trade shows and conferences. At the meeting on the 30th, we recommend reviewing the materials received to date from PRO members as a result of the June 30 meeting, and discussing next steps in adapting these materials for use with the pocket folder to create an information kit.

CTL027676

Send Legal Dept FAX # to Pat

agenda



PIPE RESOURCE ORGANIZATION

Cleveland Airport Marriott
4277 West 150th Street
Cleveland, Ohio 44135

Wednesday
August 30, 1989
9:00a - 3:00p

I. SELF-INTRODUCTIONS

II. APPROVAL OF MINUTES OF JUNE 28, 1989 MEETING

III. COMMUNICATIONS PROGRAM

- A. Status report on collection and summarizing information to correct misinformation and prevent potential problems.

C. Gruber
N. Jacobs
P. Lloyd
R. Gottesman

B. Agency Report

1. Advertising Program
2. Development of Technical Data Sheets/Information
3. Pocket Folder

D. Stanowick -
Group

Group

C. Quarterly Newsletter

C. Bozman

IV. UNI-BELL RELATIONSHIP

- A. Uni-Bell Comments on Benchmark Survey
- B. Report on 8/29 Meeting of PRO representative and R. Walker
- C. Tapping Issue
- D. Promotion/Advertising of University Textbook
- E. Piping Systems Institute

R. Walker
D. Peters

Group
Group

R. Walker

V. DISSEMINATION OF BENCHMARK SURVEY

D. Peters
/M. Barish

VI. CODE MATTERS

- A. Status Report
- B. Fall Meeting with Code Consultants

A. Reventas
R. Gottesman

VII. CALIFORNIA ENVIRONMENTAL IMPACT REPORT (EIR)

A. Status Report

R. Gottesman

VIII. OTHER SUBJECTS

Group

IX. NEXT MEETING (DATE/LOCATION)

X. ADJOURNMENT

CTL027677

It should be noted that through Anderson, Dunston & Helene, its fulfillment firm, the Vinyl Institute has established full-service inquiry response and lead-tracking capabilities. All individuals who request information from PRO will be added to this computerized data base. Their names will be a valuable resource as we expand communications activities for the Organization in the future.

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PUBLICITY

In addition to the media recommended for the advertising program, there are a number of other credible publications serving various segments of the market that can help tell PRO's story through publicity. In fact, results of the market research revealed significant interest on the part of key industry editors to hear more about vinyl pipe as well as about PRO itself.

Media Audit

As a first step in an ongoing campaign to gain coverage of the use of vinyl in pipe applications, we have developed an expanded media list and have begun to contact approximately 15 leading publications in order to determine specific opportunities and interests among key editors. The results of this audit should serve as our blueprint for ongoing media contacts, streamlining the media contact process and alerting us to special opportunities. This audit should also serve to formally introduce PRO to the trade media, and we recommend updating it annually.

Other Initiatives

Upon completing the audit, we recommend ongoing media contact to establish PRO as a timely and credible spokesman for the use of vinyl in pipe applications, to promptly respond to misinformation about vinyl that appears in both the trade and general press, and to seek opportunities to promote the advantages of vinyl pipe. Activities here would include:

Assembly and distribution of a media kit. This would include background information on PRO plus the materials discussed elsewhere in this proposal, and will give editors and reporters a good introduction and understanding of the industry and the Organization.

CTL027679

PUMPS & WATER SYSTEMS

Lightning Arrestors

These simple devices can prevent heavy damage to submersible pumps.

The best and closest path lightning can find to true ground is a submersible motor. On average, a submersible motor with no lightning protection in the US has about a 30 percent chance each year of being damaged by lightning-induced voltage surges.

Lightning need not strike directly to cause damage to submersible motors. A lightning discharge merely in the vicinity of a power line supplying a submersible motor is enough to cause extremely high voltages to be induced in the power line. This induced voltage surges down the submersible motor's leads into the motor windings and slams into the insulation between the windings and the motor frame, punching a small hole through the insulation. If the motor is running, the normal current of the motor will follow through the hole and arc, increasing the damage to the insulation and immediately disabling the motor. If the motor is not running, the small hole will at once weaken the insulation strength of the motor, eventually form an electrical circuit from the motor windings to the outside motor frame, and cause motor failure.

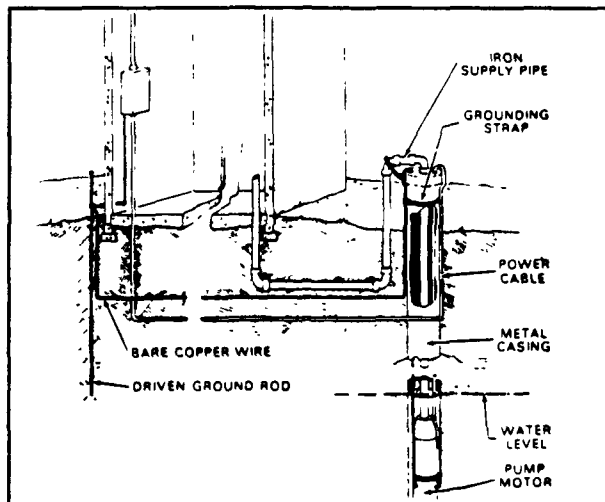
Lightning arrestors tame such surges when installed in the motor control box above ground. And they stop most lightning damage entirely when built into the submerged motor itself. A lightning arrestor is a voltage limiting device, like a safety valve. By momentarily allowing current to flow to ground, it allows only a safe level of voltage to appear on the circuit.

Proper Grounding Design

The amount of protection by a lightning arrestor depends upon the distance between the arrestor and the motor. Arrestors housed in a control box above ground are not entirely effective. Since current seeks ground in all available directions, part of the initial electrical surge — which does not "know" where ground will be found before it arrives at the arrestor — follows the

drop cable, enters the motor, hits the insulation, can't penetrate and doubles back. For an instant (the time it takes for the voltage to travel back to the arrestor's ground terminal), the surge doubles in magnitude. The power of this voltage "reflection" often damages the motor's insulation in the manner of a full surge.

For an above-ground arrestor to be most effective, it is absolutely essential to ground it to the motor or to ground water in the best way possible. Little or no protection is gained when the arrestor is grounded by means of a driven grounding rod.



Better protection is obtained when the above-ground arrestor is connected to the submerged motor shell by means of metallic drop pipe, metallic well casing or copper ground wire. Grounding wires should be stranded copper wire equal in size to or larger than the drop cable used. Still better is an arrestor connecting to the neutral ground of the power supply and to the metallic shell of the submerged motor

via a drop pipe or wire.

The ideal place for the lightning arrestor is inside the motor itself. Many motors have an acorn-shaped arrestor for each motor lead. With these arrestors, lightning and voltage surges are harmlessly grounded before reaching the motor windings. Large motors require larger arrestors mounted above ground.

Lightning arrestors save troubleshooting calls, low profit pulls, checks of the remaining parts of damaged systems, frustrating repair jobs and added paperwork. They save you and the owner the expense of replacing submersible motors damaged by lightning.

Adapted with permission from Franklin Aid, a publication of Franklin Electric, Bluffton, IN.

For further information,
Circle Fast Action No. 103

More Executive Report between pages 14 and 15.

CTL027680

Newsbriefs

The public ranks active hazardous waste sites and abandoned hazardous waste sites as the first and second most serious environmental risks, respectively, among 28 such risks cited in a recent poll by the Roper Organization. Sixty-two percent of the public believes active hazardous waste sites are a "very serious" environmental risk, and 61 percent similarly describe abandoned hazardous waste sites, the poll says. Other risks of interest to the ground water industry, the public's ranking of them and the percentage of poll respondents who called them "very serious" are: industrial water pollution, fourth, 58 percent; radioactive waste, fifth, 58 percent; underground storage tank leakage, seventh, 55 percent; farm runoff pollution, 11th, 50 percent; contaminated tap water, 12th, 49 percent; water pollution from sewage, 16th, 45 percent; non-hazardous waste sites, 23rd, 33 percent; and indoor radon gas pollution, 27th, 21 percent.

Although housing starts as a whole were down by 2.7 percent in April in the US Bureau of the Census' monthly report, the decrease was heavily concentrated in multi-family housing. Construction starts of single-family housing had a much better showing, up by 5.1 percent over

March. *Marketing Newsletter* suggests that, with the start of an apparent decline in long-term mortgage interest rates, housing construction activity should pick up in the second half of the year.

Business boomed during the first three months of the year for distributors of environmental equipment used for complying with the federal government's new underground storage tank rules, according to a spot survey con-

ducted by the Petroleum Equipment Institute of its members.

Water treatment chemical shipments are predicted to increase at the rate of 10 percent a year through the year 2000, says Leading Edge Reports, a market research firm. Increasing public concern about water quality, more government enforcement and requirements of industrial users for improved treatment are among the factors ex-

pected to spur the growth, the firm says.

Jury awards for employees who successfully challenge a firing in court on grounds of wrongful discharge are now averaging \$602,000, according to the Bureau of National Affairs, Inc., quoting a recent study by a law firm. It says the percentage of employee victories rises significantly in certain types of cases, such as defamation, sex discrimination and sexual harassment.

Tech Tips

Servicing Core Barrels

To get good performance from core barrels, they must be serviced before being run. When in continual use, they should be serviced each week.

After removing the bit and shell of a conventional core barrel, open the water end to gain access to the inner tube. Separate the core barrel head from the inner tube and then remove the inner tube from the barrel. If the inner tube has an extension (core lifter case or adapter), this should also be unscrewed.

Each time the barrel is emptied:

- Check the inner tube for bends, dents, scratches or wear on both surfaces. Some inner tubes can be reversed if one end is worn or damaged.

- Wash sand particles

and grit from the tubes.

- Check core lifter for fit on a piece of core and for smooth movement in the adapter or bevel.

Other preventive maintenance procedures should be followed regularly:

- Check the outer tube for bends, dents, scratches or wear on both surfaces.

- Check the condition of any wear strips or "spots" on the head (adapter or coupling).

- Check that the water passages are clear and clean.

- Check the inner tube relief hole and any ball valves or seals.

- Wipe the tubes clean by pushing a wad of cloth through the bore.

- Thoroughly clean grease from all threads, springs and bearings. Cleaning removes all for-

eign materials, increases life by clearing away any abrasive particles and allows complete inspection.

- Inspect for wear, correct clearances, dents and galls. Ensure that the races spin freely, the cages are not broken or the race surface cracked.

- If any inner tube stabilizers are fitted, remove them and check for wear. Check shutoff valve rubbers, if fitted.

- Replace worn parts. Grease all operating parts and threads.

- Make up and tighten all joints.

- Check the gap in extended inner tube barrels.

Adapted from the Australian Drillers Guide, available from S.A. Smith Consulting Services, PO Box 88, Ada, OH 45810.

Development of news releases and media backgrounders. We would like to develop an ongoing series of releases to help build visibility for vinyl and PRO among your key audiences. Subjects would include industry milestones, annual useage figures, major PVC installations, code approvals and research results as well as specific PRO activities including the publication of new literature, technical papers and trade show or conference presentations.

Origination and/or participation in feature articles. Our audit will uncover initial opportunities here. Examples might include stories about what municipalities are doing in response to the EPA's ban on asbestos-cement pipe, or the results of the industry's permeation study - conducted several years ago. In light of the research findings, we should make a special effort to generate additional coverage on this subject.

Development and distribution of case history stories. Virtually every one of the editors interviewed for the market research study expressed an interest in case histories. The individuals/municipalities featured in our recommended advertising program would be good sources. So would others with whom Uni-Bell has previously worked and featured in its member newsletter. Subjects could include:

- * Municipalities that have converted to vinyl from competing materials.
- * Prominent users of vinyl and why.
- * Longtime users of vinyl and why.
- * An overview of vinyl in a particular pipe application.

We recommend that we begin work immediately with Uni-Bell to develop several stories.

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SUMMARY

The recommendations in this proposal in no way should be considered a comprehensive plan to market the advantages of vinyl pipe and the existence of the Pipe Resource Organization. Rather, the activities described here should be considered the foundation of a broader effort that will be expanded in the months ahead as PRO becomes more involved with the pipe specification industry and learns more of that group's information needs.

Tehnical programs and developments, cooperative efforts with other industry groups, and the one-on-one contacts that PRO members will develop through their work with ANWA and others will provide additional communications opportunities. We will work closely with the Organization in the beginning months of this program to make sure that information needs are addressed and opportunities recognized.

An estimated budget for the launch of the PRO program and a timetable for these activities follow.

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Pipe Resource Organization
Communications Program Launch
September 1989 - May 1990
Estimated Budget

Space costs for 7 insertions in AWWA Journal (full-page, 4-color)	\$27,223
Space costs for one insertion each in:	
Municipal Index	3,710
Public Works Manual	3,544
Ad production costs	14,000
Pre-program baseline research	2,500
PRO pocket folder (5000)	
Design, copy development and project supervision	3,500
Photography and production (assumes existing photography inside; use of stock photo on cover will reduce costs further)	2,000
Printing	7,900
Publicity initiatives	7,500
General counsel, client meetings and miscellaneous requests in support of the overall PRO program	<u>7,000</u> \$78,877

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Pipe Resource Organization
Communications Program Launch
September 1989 - May 1990
Implimentation Timetable

September 1989

Identify advertising testimonial candidates and begin ad production
Complete initial media audit and develop list of priority activities
Begin development of pocket folder
Develop advertising pretest

October 1989

Complete ad production (first ad)
Conduct ad pretest
Begin media activities (ongoing activity)
Begin production of pocket folder
Develop inquiry response materials (cover letters, etc.)

November 1989

First ad appears
Complete ad production (#2)
First distribution of pocket folder

December 1989

Second ad appears
Place ad in Municipal Index

January 1990 - May 1990

Continue ongoing activities
Identify opportunities related to PRO technical, networking activities
Place ad in Public Works Manual (March)
Review program to date and develop recommendations for FY 90-91

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